

QUEST

ADVENTURES IN THE WORLD OF SCIENCE

ENERGY

50

SCIENTIFIC PROJECTS

GIANT POSTER: BRONCO BUSTERS

FACT FILES ON:

- ▶ Nuclear power
- ▶ Mining coal
- ▶ Mega generators
- ▶ Saving energy
- ▶ Digestion
- ▶ Space beams

MAKE AN OIL RIG

INSIDE THIS PACK

FACT FILES

- Energy from food ► Coal mining ► Generating electricity ► Beaming power from Space ► New fuels ► Saving energy ► Powering the body



MODEL Marine oil rig

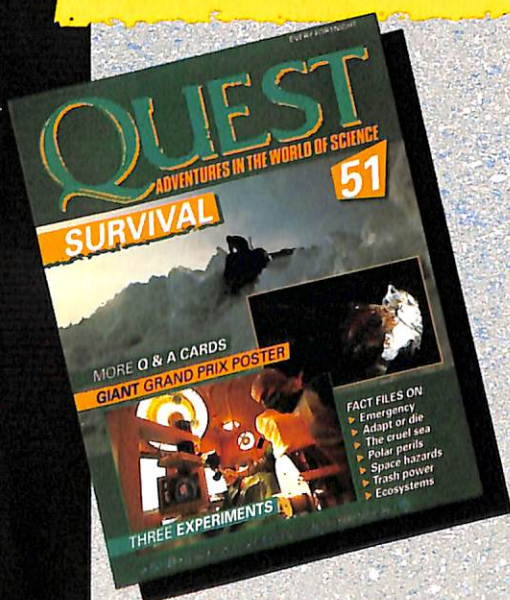


POSTER
The rodeo riders



PROJECT SHEET

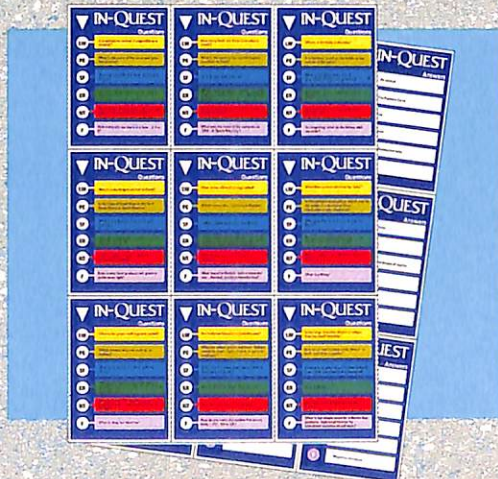
COMING IN QUEST 51 SURVIVAL



More In-Quest
Q & A cards

FACT FILES INCLUDE:

- Adapt or die
- Renewable energy
- Survival in hospital
- Living in Space
- Ecosystems explained
- The cruel sea
- The ends of the Earth



POSTER
Grand Prix mega shunt

ISSN 1350-3766



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MODEL

ASSEMBLY INSTRUCTIONS

1 2 3 4 5

You will need

Scissors • Ruler • Craft knife • Glue

Before cutting out the pieces, score along all broken lines with a blunt edge and ruler to make folding and gluing easier. Study the ASSEMBLY DIAGRAM to see how the pieces fit together, and use the dotted lines as a guide for positioning.

NB Younger children will need supervision when using a craft knife.

To make up

Platform

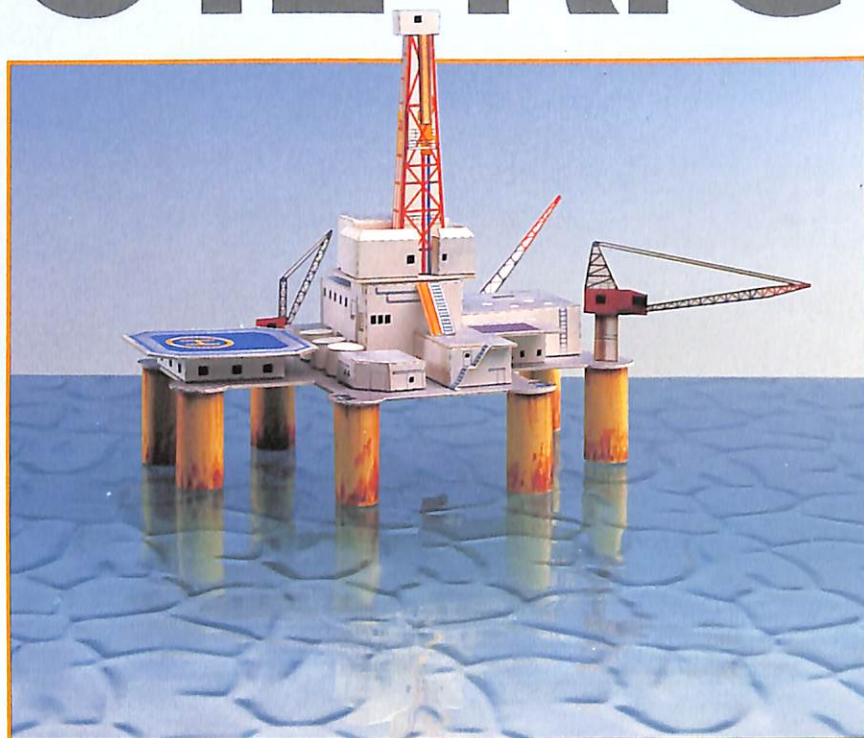
1 Cut out platform **A**. Cut out accommodation block **B** and fold to shape, sticking flaps in place. Then glue flaps on base to **A**, following positioning marks (see ASSEMBLY DIAGRAM). Repeat with block **C**. Cut out wing **D**, fold to shape and glue to side of **C**, following positioning marks. Repeat with accommodation block **E**.

2 Cut out deck **F**, cutting along solid line by stairs, and glue to upper flaps on **D** and **E**. Fold tab at bottom of stairs under, fold stairs to shape and glue tab to platform **A**. Cut out block **G**, fold to shape, and glue to **A**. Repeat with block **H**.

3 Cut out three storage drums all marked **I**. Glue each one into a tube and stick tabs at one end to dots on **A**. Cut out three drum tops **J** and glue to drums. Cut out stairs and chute **K**. Glue folded down tab at top of stairs to **B** and tab at stairs base to **F**.

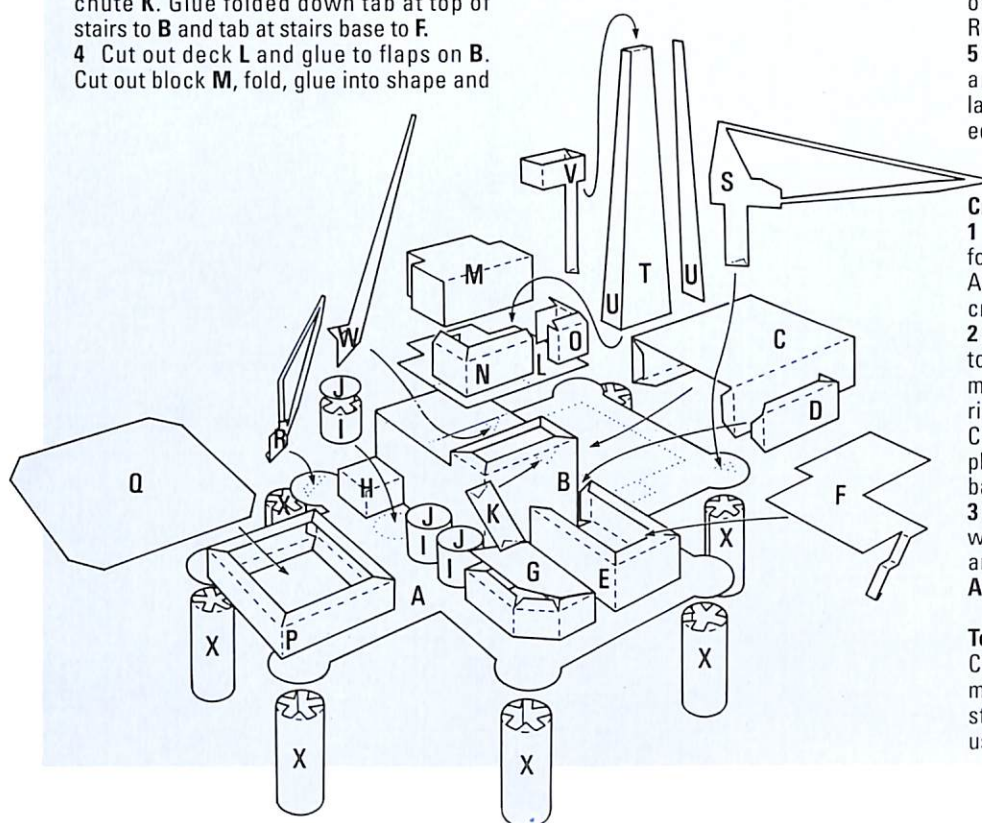
4 Cut out deck **L** and glue to flaps on **B**. Cut out block **M**, fold, glue into shape and

OFFSHORE OIL RIG



stick to **L**, following positioning guides. Cut out wall **N**, fold to shape and glue to corner of **L**, again following positioning marks. Repeat with wall **O**.

5 Cut out helicopter platform base **P**, fold and glue into shape. Cut out helicopter landing platform **Q** and stick on top of folded down upper flaps on **P**.



Cranes and derrick

1 Cut out crane (for taking on supplies) **R**, fold tab back and stick to corner of **A** (see ASSEMBLY DIAGRAM). Repeat with supply crane **S**.

2 Cut out derrick (drilling tower) **T** and fold to shape. Cut out two derrick sides, both marked **U**, and stick to flaps on **T**. Glue derrick base to deck **L**, within walls **N** and **O**. Cut out derrick top **V**, fold and glue tab in place. To fix top in position, fold back tab at base of pipe and glue tab to side of derrick.

3 Cut out supply crane **W** and fold tab forward. Find positioning marks on side of **A** and stick underside of tab to underside of **A**, below dots.

To finish

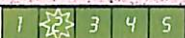
Cut out six air-filled buoyancy tanks, all marked **X**. Form each one into a tube and stick folded-down tabs to underside of **A**, using positioning marks as guide.



PROJECTS ENERGY

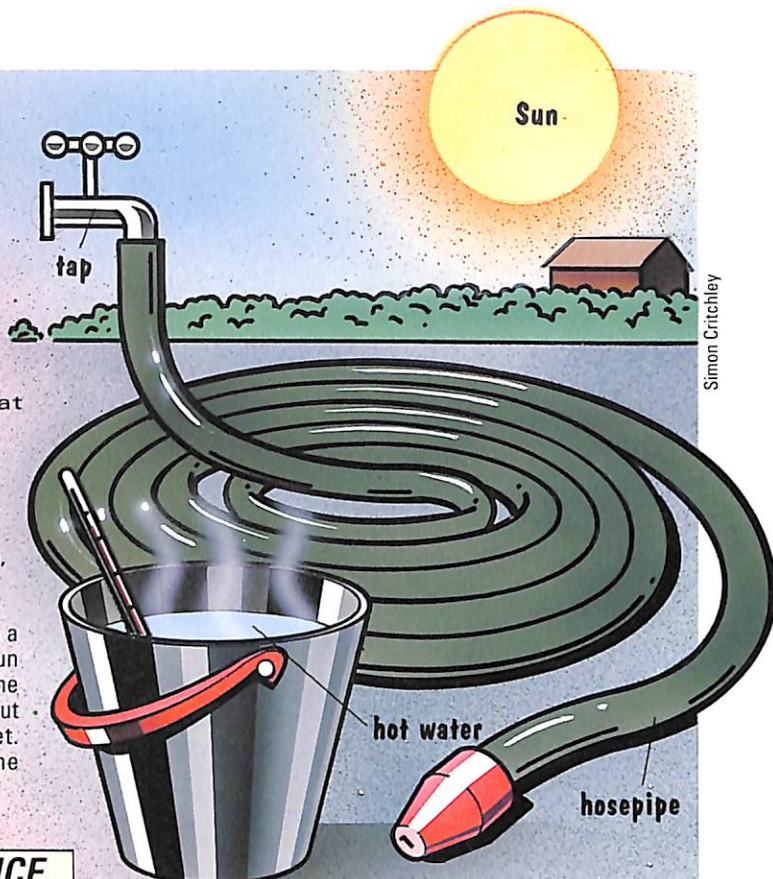
How can you harness the power of the Sun to heat water?

WATER HEATER



Solar energy can be converted into heat energy and, in more complex solar heating systems, electricity.

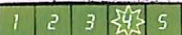
All you need is a dark-coloured hosepipe, preferably black. On a sunny day, take the hosepipe outside and coil it up where the Sun is shining directly upon it. Attach one end to a tap and close off the other end of the pipe. Fill the hosepipe with cold water. After about an hour, unstop the pipe and pour a little water into a bucket. Carefully test the temperature of the water – depending on the weather, it could be very hot indeed.



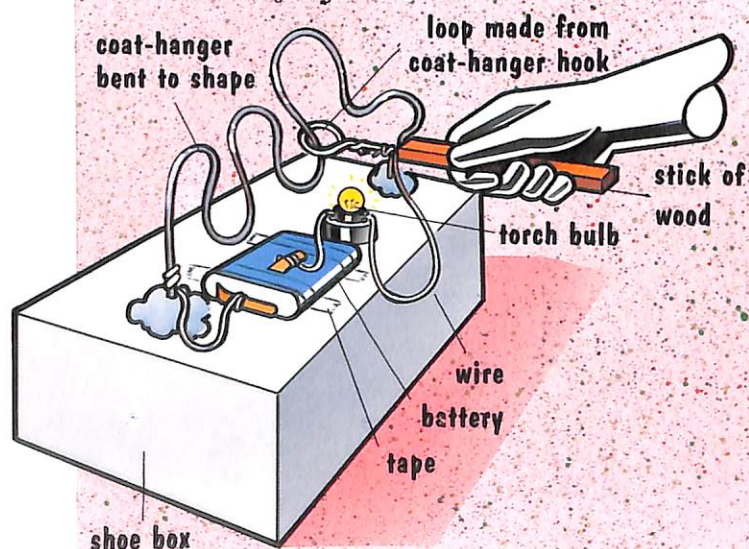
Simon Critchley

ADVENTURES IN THE WORLD OF SCIENCE

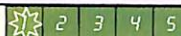
STEADY HAND GAME



You need one wire coat-hanger, a 9 volt battery, 1 metre of electric wire, a pair of pliers, a torch bulb and holder, a shoe box, sticky tape, plasticine and a stick of wood 1 cm square x 15 cm long. Snap the hook off the coat-hanger, then twist it to the shape shown. Insert both ends into the top of the shoe box and secure them with plasticine. Cut a length of wire and connect one end to the left-hand coat hanger base and the other to the battery. Cut another length and connect the battery to the light bulb. Fix one end of the remaining wire to the other terminal on the bulb holder. Tape the bulb holder and battery to the top of the box. Bend the coat-hanger hook into a tight loop around the wire frame and tape it to one end of the piece of wood, having connected the free end of the last length of wire to the base of the loop. When the loop touches the bent wire, the circuit is completed and the bulb lights up. Test how steady your hand is by attempting to take the loop from one end of the bent wire to the other without lighting the bulb.



EGG TEST



You need two eggs. Boil one of the eggs for about ten minutes. After it has cooled, place it on a table and spin it hard. Then, put your finger on top of the egg and stop it spinning. The egg will remain stationary when you remove your finger. Repeat this with the uncooked egg. This time, when you remove your finger after stopping the egg spinning it will start to spin once more. This is because the yolk inside is still spinning and so transfers this energy to the rest of the egg.

cross-section
through
egg



spinning yolk



egg

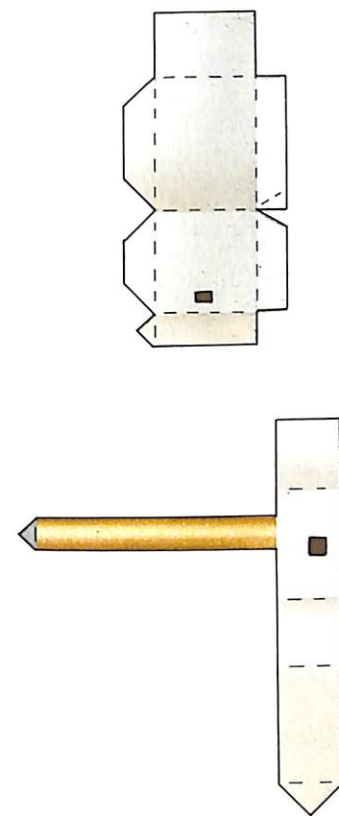
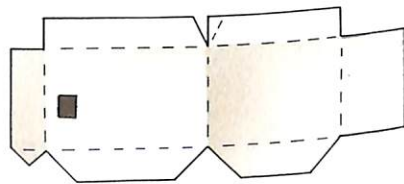
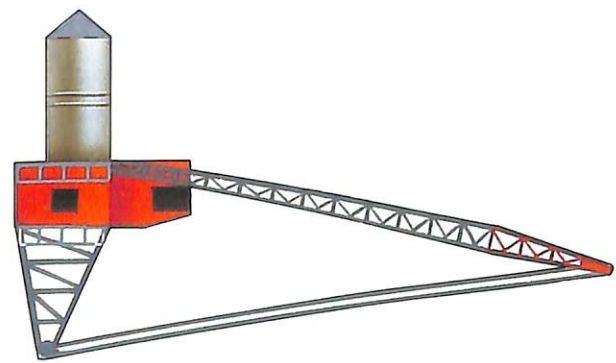
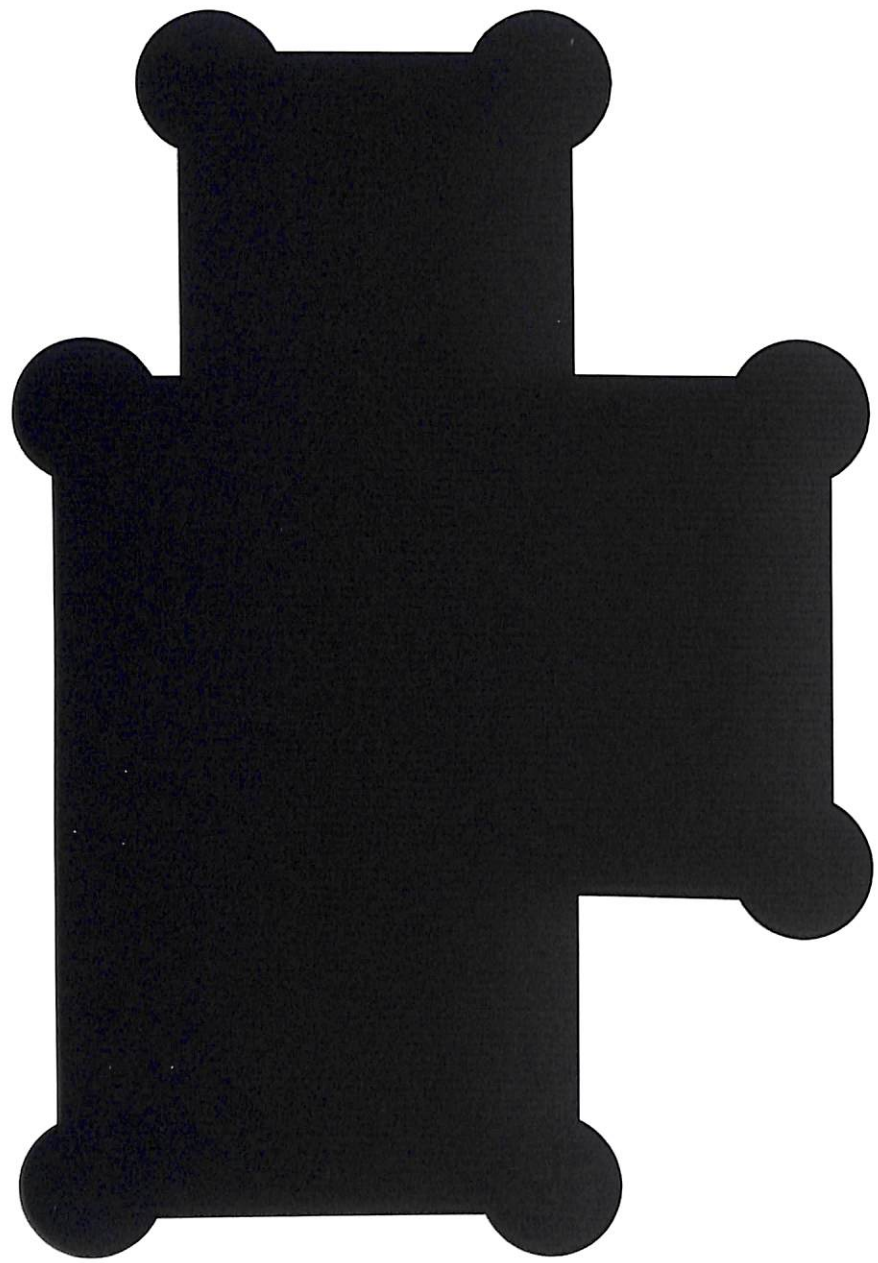
PROJECT INFORMATION



Each QUEST project and model has its own difficulty rating: 1 very simple, 2 simple, 3 intermediate, 4 advanced, 5 complicated.

WARNING!

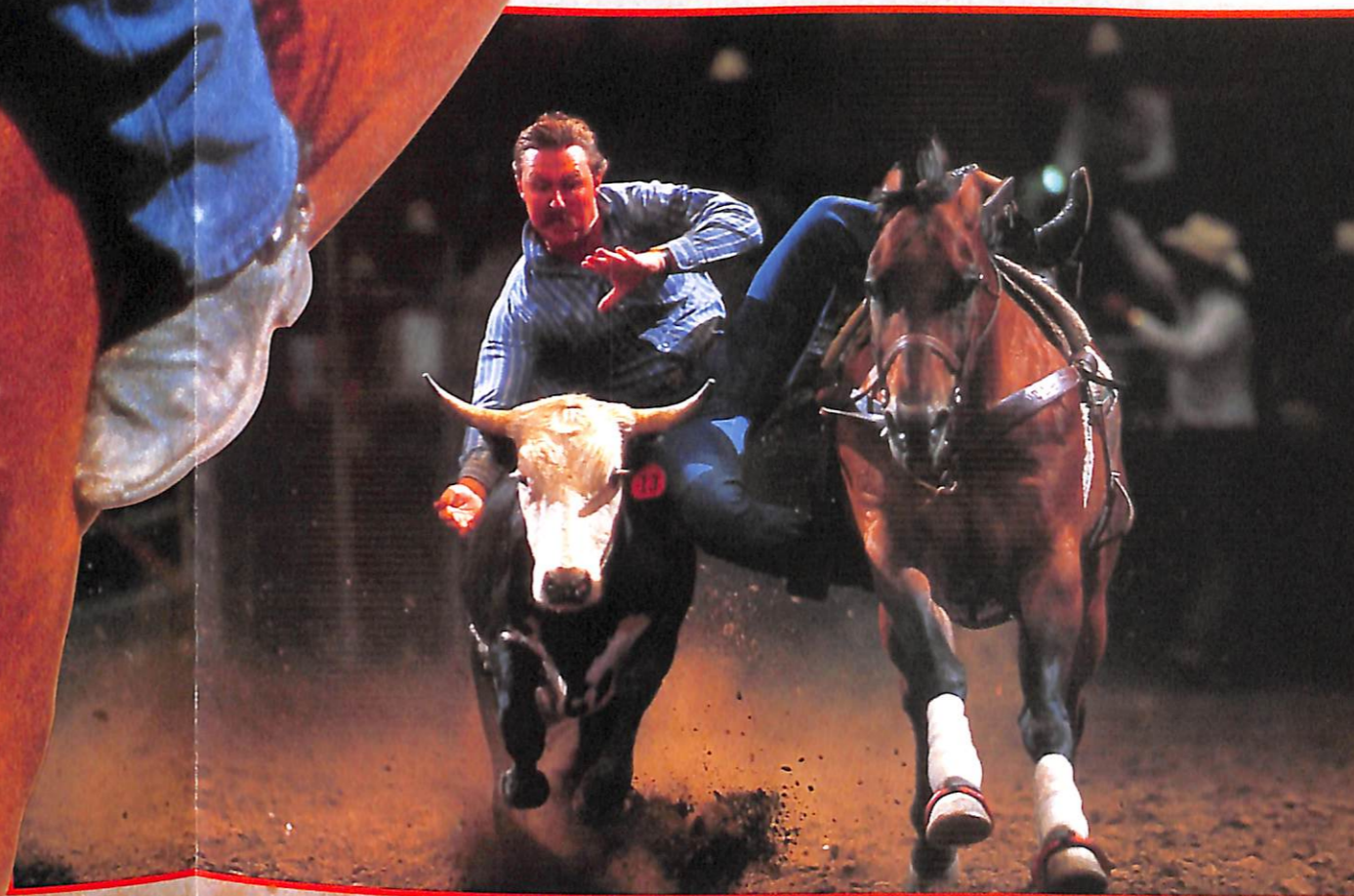
Every care has been taken to ensure projects are as safe as possible. However, parents should supervise all projects. The publisher can accept no liability for injury.



Dave Black/Allsport



A bronco is an unbroken range horse, picked for its resistance to training. The rider must stay on for eight seconds after leaving the chute. The judging, which is done on a points system, marks both the performance of the horse and the rider.



Mike Powell/Allsport

***Steer wrestling** – or bulldogging – began when Bill Pickett, a black cowboy from Texas, leapt on a steer's horns and wrestled it to the ground to save his horse from being gored.*

QUEST

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THE RODEO BRONCO BUSTERS

RIDE 'EM COWBOY

STILL WILD IN THE WEST

The cowboys of the western states of America and Canada still risk their lives in time-honoured fashion riding bucking broncos and wrestling steers. Australians do much the same in their 'bushmen's carnivals'.

There are five standard rodeo events – calf roping, bull riding, steer wrestling, saddled bronco riding and bareback bronco riding. Single-steer roping and team roping are also recognized championship events. Trick riding, fancy roping and barrel racing – a popular event for cowgirls in which contestants race around a series of barrels – are also featured.

Contestants do not get paid. They pay an entry fee, and any prize money they win is their only reward.

Calf roping and steer wrestling are timed events. The record time taken to rope a steer is under 15 seconds. A steer, which must be thrown with its head and all its feet in a line, can be brought down in under 10 seconds.

Steer wrestling is also known as 'bulldogging' because the early contestants who originated the sport used to bite the steer's upper lip in a bulldog grip. Biting has since been outlawed.

The broncos are not trained to buck and cruelty to make them do so is forbidden. In bronco and bull riding, the contestant must ride one-handed. He is disqualified if his free hand touches the animal or its rigging.

